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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Junwon Lee, et al

BRIGHTNESS ENHANCEMENT FILM USING LIGHT CONCENTRATOR ARRAY

Serial No. 10/785,598

Filed 24 February 2004

Group Art Unit: 2875

Examiner: Jacob Y. Choi

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Deidra L. Mack
Deidra L. Mack

December 5, 2005
Date

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Sir:

DECLARATION UNDER RULE 132

The undersigned, Junwon Lee, declares that:

He has received the following degrees:

BS in Physics, Yonsei University, Seoul, Kores, 1993

MS in Physics, yonsei University, Seoul, Korea, 1996;

MS in Optical Sciences, University of Arizona, 2000;

Ph.D in Optical Sciences, University of Arizona, 2003

He has been employed as a Senior Optical Scientist for two years and has 8 years experience in optical technology;

He is an inventor in the above-captioned patent application;

He has reviewed the outstanding Office Action and the applicable cited references;

Under his direction and control, the following two designs were modeled in the manner indicated:

ASAP (Advanced Systems Analysis Program from Breault Research Organization, Tucson AZ), optical software was used to simulate the optical performance of two different designs. This software is a well-known tool in optical and display technology work.. Exact geometries of objects are created in the software and millions of rays are traced through the geometries. It employs non-sequential ray tracing which is a proven technology to predict optical phenomena in optical experiments. In the simulation included here, every set-up is identical in both cases except the shape of the micro-structure is either a cone or a parabola so that the result indicates which is the better shape to produce brighter illumination, especially in a normal direction. The dimensions of the design elements were as follows:

Height of cone: 50 microns
Width of cone: 100 microns
Height of parabola: 50 microns
Width of cone: 100 microns

The relative brightness of the resulting film was as follows:

Brightness Comparison (Cone vs Parabola)

Angle	-15.00	-10.00	-5.00	0.00	5.00	10.00	15.00
Cone	74600	81000	81900	81800	85400	87300	78400
Parabola	54800	82800	111700	135900	134600	121800	63600

In the table, the brightness of the cone and parabola are shown in a relative scale. A higher number means brighter illumination. For example, the brightness produced by the parabola in a normal direction of 0° is 65% greater than for the cone. Thus, the parabola design is a more efficient shape to create brighter illumination in the normal direction area. It is noted that the two designs do not vary symmetrically and this is due to the side origin backlight.

The undersigned declares further that all statements made herein of the undersigned's own knowledge are true and all statements made on information and belief are believed to be true. These statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Junwon Lee

Date: Nov 18 2005